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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,003	02/25/2005	Helmut Scidlitz	HAFTOM P02AUS	9610

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EXAMINER	
DRODGE, JOSEPH W	

ART UNIT	PAPER NUMBER
1797	

MAIL DATE	DELIVERY MODE
10/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/526,003	SEIDLITZ ET AL.	
	Examiner	Art Unit	
	Joseph W. Drodge	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) 4-8 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-3 and 9-16 is/are rejected.

7)☒ Claim(s) 4-8 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 0205,0805.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

The preliminary Amendment did not formally cancel original claims 1-8, therefor for examination purposes, these claims are considered still pending.

Claims 4-8 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claims 1-3 and 9-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1,9 and 11, phrases "particularly' (plural occurrences) and "for instance" render the claims indefinite.

Claims 9 and 10 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 1 and 2, respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1,2,3, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robin et al patent 4,871,460 in view of Vaughan patent 2,819,015.

Robin et al disclose extraction of impurity components from an industrial liquid, by using supercritical (i.e. "compressed") carbon dioxide in liquid form, with the carbon dioxide being applied in counterflow to a flow of liquid in a solvent extraction column ("of known variety"), with the purified liquid and contaminant laden carbon dioxide being discharged separately from the each other. See especially column 3, lines 1-50 and column 4, lines 20-31.

The claims all differ in requiring that the carbon dioxide or liquid be applied as a thin film that is constantly renewed by mechanical action. However, Vaughan teaches to utilize a cylindrical rotor 60/62 filling a substantial interior volume of cylindrical counterflow solvent extraction column 9, with the rotors having having vanes 12 and associated blades 53 [as in claims 2 and 10] with radial ends that are closely adjacent the walls of the cylindrical column, so as to inherently form and maintain such thin films in the annulus between rotor surface and column interior surface, or at least proximate the rotor blade surface and column extraction surface, see particularly column 2, lines 30-42. The Vaughan device is utilized in separating impurities from various industrial liquids (column 2, lines 6-21).

It would have been obvious to have utilized the design of the Vaughan extraction column for the column of Robin et al, in order to more thoroughly mix carbon dioxide and liquid being purified, so as to effect contact of the entire flow volume of liquid with carbon dioxide.

Claims 3, 11-13, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaughan patent 2,819,015 in view of Robin et al patent 4,871,460.

Vaughan discloses to utilize a cylindrical rotor 60,62 filling a substantial interior volume of cylindrical counterflow solvent extraction column 55, with the rotors having vanes 12 and associated blades 53 [as in claim 12] with radial ends that are closely adjacent the walls of the cylindrical column [as in claim 13] so as to inherently form and maintain such thin films in the annulus between rotor surface and column interior

surface, or at least proximate the rotor blade surface and column extraction surface. See also column 2, lines 30-43. The column has oppositely directed inlets and outlets 48,91. The Vaughan device is utilized in separating impurities from various industrial liquids (column 2, lines 6-20). Vaughan also disclose lids 22,89 and/or flange structures 49,90 at opposite ends and Robin teaches maintaining of elevated pressure (column 3, lines 35-48) for claim 16.

These claims all differ in requiring the device to be operable for use in extracting impurities from the liquids using compressed, or supercritical liquid gases such as carbon dioxide. But, Robin et al disclose extraction of impurity components from an industrial liquid, by using supercritical (i.e. "compressed") carbon dioxide in liquid form, with the carbon dioxide being applied in counterflow to a flow of liquid in a solvent extraction column ("of known variety"), with the purified liquid and contaminant laden carbon dioxide being discharged separately from the each other. See especially column 3, lines 1-50 and column 4, lines 20-31.

It would have also been obvious to utilize the Vaughan device for processes separating impurities from liquids with supercritical carbon dioxide, since carbon dioxide in such form has superior salvation and dissolving properties; it has a high solvent capacity especially when mixed with co-solvent(s) and may produce fewer, less toxic and less noxious by-products when contacting hazardous types of industrial liquids.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vaughan patent 2,819,015 in view of Robin et al patent 4,871,460, as applied to claims 11-13, 15 and 16, and further in view of Holl patent 6,752,529. Vaughan further

discloses rotor shaft . The claims also needs the rotor/shaft being connected to magnetic coupling. Holl suggests such magnetic coupling at column 5, lines 42-55 in a device for reacting liquids in a device with high speed rotor. It would have been further obvious to one of ordinary skill in the art to have utilized the magnetic coupling of Holl in the Vaughan device, to maintain a faster rotational speed of rotor and blades so as to effect a faster, more thorough mixing and liquid contacting.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at telephone number 571-272-1140. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Roy Sample, can reached at 571-272-1376. The fax phone number for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

September 29, 2007

JOSEPH DRODGE
PRIMARY EXAMINER